

ABSTRACT

An intrinsic Fabry-Perot optical sensor includes a thin film sandwiched between two fiber ends. When light is launched into the fiber, two reflections are generated at the two fiber/thin film interfaces due to a difference in refractive indices between the fibers and the film, giving rise to the sensor output. In another embodiment, a portion of the cladding of a fiber is removed, creating two parallel surfaces. Part of the evanescent fields of light propagating in the fiber is reflected at each of the surfaces, giving rise to the sensor output. In a third embodiment, the refractive index of a small portion of a fiber is changed through exposure to a laser beam or other radiation. Interference between reflections at the ends of the small portion give rise to the sensor output. Multiple sensors along a single fiber are multiplexed using an optical time domain reflectometry method.